



# A USER'S GUIDE TO THE WISCONSIN WETLAND INVENTORY

WISCONSIN DEPARTMENT OF NATURAL RESOURCES ❖ JG WZ71 91 ❖ PUBL.-WZ022-92

## WETLANDS AND THE WISCONSIN WETLAND INVENTORY

We know wetlands by their common names: bogs, fens, marshes, swamps, and so on. But Wisconsin Statutes define a wetland as "an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic [water loving] vegetation and which has soils indicative of wet conditions." Wet soils + water near surface + potential for wetland plants = wetland. This definition is used in all state wetland regulatory and management programs.

As part of the state's effort to protect wetlands, the legislature established the Wisconsin Wetland Inventory in 1978. The Department of Natural Resources was directed to inventory (map) Wisconsin's wetlands to obtain an accurate assessment of wetlands in the state. Over the next six years, more than 32,000 aerial photographs were analyzed, producing a record of wetland locations, sizes, and types. The initial inventory was completed in 1984 at a cost of \$2.5 million dollars.



## MAP USES

**Zoning administrators** use Inventory maps to administer wetland zoning programs (NR 115 and NR 117). These programs, established in the 1980's, include intensive public review of Inventory maps as part of the ordinance adoption process.

**Federal agencies**, including the Army Corps of Engineers, the Fish & Wildlife Service, the Environmental Protection Agency, and the Soil Conservation Service use Inventory maps along with other information sources in their wetland protection, monitoring, and management activities. *(Be sure to check with the appropriate agency to find out which maps or other information you should use when completing permit applications or participating in other wetland programs.)*

**State agencies** such as the Department of Transportation and Department of Natural Resources use Inventory maps to avoid wetlands while planning highway construction or to protect and manage wetlands.

**Architects, realtors, contractors, and other development professionals** need to know wetland locations to comply with wetland protection laws and because wetlands are poor building sites. Land use professionals insure healthy environments by including wetlands in their comprehensive land use plans.

**Teachers and naturalists** consult Inventory maps for field trips and nature hikes. Natural resource managers acquire and preserve wetland habitat critical to the survival of many rare and endangered species. Scientists continue to study how wetlands enrich and protect our environment and promote biodiversity, while evaluating the consequences of wetland loss.

**Property buyers** use Inventory maps before purchasing land to ensure that proposed building sites are not within wetlands. Many property owners choose to settle near wetlands, however, to enjoy these peaceful open spaces and the wildlife they support.

### WHAT'S INSIDE?

- ❖ How Inventory maps are made and updated
- ❖ How to obtain and use Inventory maps
- ❖ Sample legend and map
- ❖ Contacts and related information

# AN OVERVIEW OF THE WISC

## VALUABLE WETLANDS

Bogs, fens, swamps, wet prairies ... these varied environments contribute in remarkable ways to our health, our economy, and our quality of life. Wetland soils and waters have an unusual capacity to trap and hold pollutants, thereby protecting water quality in lakes, streams, and rivers. "Spongy" wetland soils hold water from heavy rains, reducing storm and flood damage dramatically. By acting as a buffer between moving water and shoreline, wetlands control erosion. And without wetlands, hundreds of Wisconsin's plant and animal species would not survive—including prized game fish, waterfowl, and songbirds.

About half of Wisconsin's wetlands have been destroyed in the last 200 years. Preserving those that remain has become critically important. Understanding that the cost of protection is far less than the cost of rehabilitation, local, state, and federal governments have established programs to restrict activities which impair natural wetland functions.

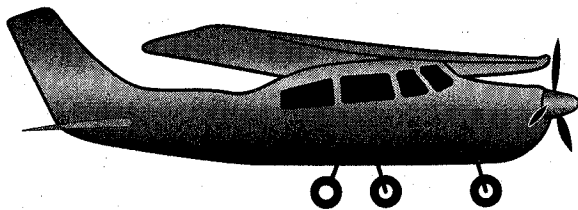
## IDENTIFYING WETLANDS

Most of us recognize the wettest wetlands when we see them: swamps, marshes, and bogs. Other wetlands are less obvious; water may be just below the surface or flooding may be relatively frequent, but not long lasting. Some forests and meadows are wetlands even though they may appear dry on a summer afternoon. These drier wetlands provide important functions and are equally protected by law.

Wetlands of 2 acres and larger are outlined and classified on Inventory maps (5+ acres on older maps). Smaller wetlands are identified by point symbols (↓).

The Inventory classifies wetlands according to vegetative type, hydrology, human influence, and other wetland characteristics. Legends on each map explain the classification system. The enclosed *Classification Guide for the Wisconsin Wetland Inventory* includes detailed information about mapping standards.

## HOW INVENTORY MAPS ARE MADE



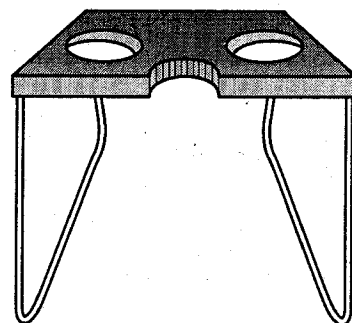
### 1. Aerial Photography

Precision mapping cameras are used to take stereoscopic (overlapping) black and white infrared aerial photographs. Each photo covers a four square-mile area (four public land survey "sections") at a scale of 1" = 1,667'.

### 2. Photo Interpretation

Highly trained interpreters use a stereoscope to view these stereo photo pairs. The use of stereoscopic photography allows the interpreter to view the terrain in 3 dimensions. The infrared film emulsion allows detection of tone, texture, reflectance, and pattern, enabling the interpreter to identify wetland vegetative types.

Interpreters also check other sources: soil surveys, topographic maps, and previous wetland inventories. A representative sampling of areas are checked in the field for accuracy and consistency, as are any areas for which photo analysis is inconclusive.



# WISCONSIN WETLAND INVENTORY

## INVENTORY PRODUCTS

The most-used products of the Inventory are 24" x 24" paper maps. Each of 1,800 different maps depicts a 36 square mile area at a scale of 1" = 2,000' (the same scale as USGS topographic maps). The Inventory also produces 'computerized' map data and acreage reports.

## MAP MODIFICATION

If you have specific evidence suggesting mapping inaccuracies, please contact the Inventory Coordinator in Madison (608/266-8852). When a correction is warranted, maps are revised and distributed to local DNR and zoning offices and to agencies which use them frequently (including the Fish & Wildlife Service, Army Corps of Engineers, Environmental Protection Agency, and Soil Conservation Service). The "Wetland Interpretation Information" box on each map notes the date of the most recent revision.

## INVENTORY UPDATE PROGRAM

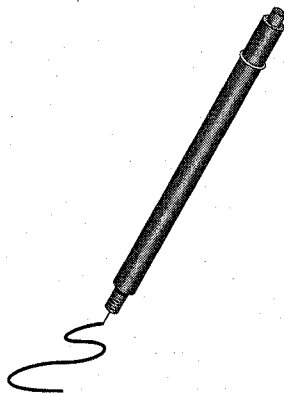
DNR is authorized to update Inventory maps on a 10 year cycle. Budget constraints have slowed the process to a 20 year cycle, at best. Updating consists of interpretation of new aerial photography and drafting current wetland information on new photographic base maps.

## WETLAND BOUNDARIES

Your project may require that wetland boundaries be staked on-site. Your local Zoning Administrator or DNR Water Management Specialist can explain how to obtain an on-site boundary determination.

*This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement # X995060-01 to the Wisconsin Department of Natural Resources. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.*

## 3. Map Drafting



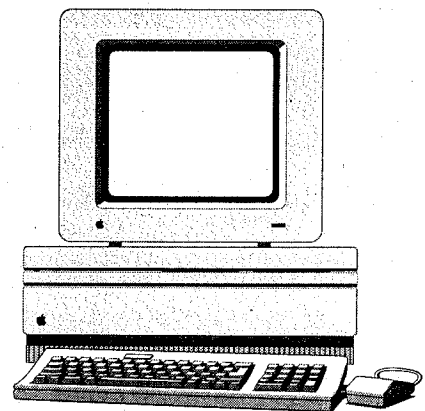
Inventory maps present information on a photographic background covering 36 square miles (1" = 2,000'). Interpreters draft wetland boundaries and classifications directly on these photographic base maps. Other information is also noted, including municipal boundaries, waterways, and major highways.

The date a base map photo was taken may differ considerably from the date of the interpreted infrared photo. For example, information from a photograph taken in 1990 may be drafted on to a 1980 photographic base map. This can be confusing if landmarks have changed. Both dates are clearly labeled on maps.

## 4. Computerizing Map Information

The last step in producing Inventory maps is the conversion of paper maps to computer data (digitizing). Digitizing is accomplished by mounting maps on a digitizing table and tracing boundaries. Wetland boundaries and labels are then stored as digital computer data.

Digital data can be used for complex analyses which may be inefficient or impossible with paper maps and to analyze wetland loss on a county, state, or regional basis. Wetland data can be combined with automated information about floodplains, soils, transportation networks, etc. to create new generations of information (a geographic information system, or "GIS").



# WISCONSIN WETLAND INVENTORY CONTACT INFORMATION

- ❖ For technical questions about the Wisconsin Wetland Inventory...Contact the Inventory Coordinator in Madison (608/266-8852).
- ❖ For questions about local, state, and federal wetland protection programs...Contact these individuals or organizations:
  - Local Zoning Administrator
  - DNR Water Management Specialist
  - U.S. Army Corps of Engineers
  - U.S. Agricultural Stabilization & Conservation Service
- ❖ For questions about local, state, and federal wetland management programs...Contact one or more of these individuals and organizations:
  - DNR Private Lands Management Specialists
  - DNR Wildlife or Fisheries Managers
  - Regional Planning Commission
  - Wisconsin Wetlands Association
  - Audubon Society
  - Nature Conservancy
- ❖ For a general discussion of wetland regulations and management programs and a list of local contacts...Ask for the publication *Building Near Wetlands: The Dry Facts*, available at any DNR office.
- ❖ To learn more about the Wisconsin Wetland Inventory...Watch the video, *Using Wisconsin's Wetland Inventory*, at any DNR or zoning office.
- ❖ To review Inventory maps...Stop by your local zoning or DNR office.
- ❖ To purchase Wisconsin Wetland Inventory maps...Follow these steps:
  1. Pick up an order form at your local zoning or DNR office.
  2. While you're there, use a plat book to find the location information requested on the order form.
  3. Complete the order form and enclose payment. Maps cost \$2.00 + postage.
  4. Turnaround time is usually 2-3 weeks. For faster service, select 1st class postage option.
  5. Mail order form to: Wisconsin Geological & Natural History Survey, Map Sales, 3817 Mineral Point Rd., Madison, WI 53705, (608) 263-7389.

## SAMPLE LEGEND AND MAP

- E1H** persistent emergent/wet meadow with standing water
- S3K** deciduous shrubs, wet soils
- WØH** open water
- S3/E1K** combination of deciduous shrubs and persistent emergents
- E1Kg** persistent emergent wetland which is grazed
- ∇ wetland less than 2 acres in size
- △ Dammed pond smaller than 2 or 5 acres
- Excavated pond smaller than 2 or 5 acres

